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EXAMINER

BOYER, RANDY

ART UNIT	PAPER NUMBER
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1764

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	02/07/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/822,859

Applicant(s)

MANNA ET AL.

Examiner

Randy Boyer

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 April 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☒ Claim(s) 1 and 3-8 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Claim Objections

1. Claim 1 is objected to for incorrect spelling. As submitted, claim 1 reads, "A process for preparing polymer / food grade hydrocarbon solvents of naphtha range containing very low aromatics, especially *bezene* [. . .]" (emphasis added). Examiner suggests correction by amending the claim to include the proper spelling for benzene. Appropriate correction is required.

2. Claims 3-8 are objected to for lack of antecedent basis. Dependent claims 3-8 all recite the limitation "the raffinate feed" (claims 3-7) or "the raffinate stream" (claim 8). There is insufficient antecedent basis for this limitation in claims 3-8 or in independent claim 1 from which claims 3-8 depend. Appropriate correction is required.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

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5. Claims 12, 13, and 20 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

6. With respect to claim 12, the claim recites the limitation "the pore volume of the catalyst is about 0.2-0.3." The claim language is indefinite since it does not provide the basis for which the catalyst pore volume is to be measured (e.g. cm³/g, etc.).

7. With respect to claim 13, the claim recites "A process for producing polymer / food grade solvents of naphtha range from paraffin rich hydrocarbon streams through hydroprocessing." However, since the claim does not set forth any steps involved in the process, it is unclear what process applicant is intending to encompass. A claim is indefinite where it merely recites a use without any active, positive steps delimiting how this use is actually practiced.

Claim 13 is rejected under 35 U.S.C. 101 because the claimed recitation of a use, without setting forth any steps involved in the process, results in an improper definition of a process, i.e., results in a claim which is not a proper process claim under 35 U.S.C. 101. See for example *Ex parte Dunki*, 153 USPQ 678 (Bd.App. 1967) and *Clinical Products, Ltd. v. Brenner*, 255 F. Supp. 131, 149 USPQ 475 (D.D.C. 1966).

8. With respect to claim 20, the claim recites "A process for preparing polymer / food grade hydrocarbon solvents of naphtha range containing very low aromatics such as herein described with reference to the accompanying examples." However, since the claim does not set forth any steps involved in the process, it is unclear what process

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applicant is intending to encompass. A claim is indefinite where it merely recites a use without any active, positive steps delimiting how this use is actually practiced.

Claim 20 is rejected under 35 U.S.C. 101 because the claimed recitation of a use, without setting forth any steps involved in the process, results in an improper definition of a process, i.e., results in a claim which is not a proper process claim under 35 U.S.C. 101. See for example *Ex parte Dunki*, 153 USPQ 678 (Bd.App. 1967) and *Clinical Products, Ltd. v. Brenner*, 255 F. Supp. 131, 149 USPQ 475 (D.D.C. 1966).

Claim Rejections - 35 USC § 102

9. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

10. Claims 13 and 20 are rejected under 35 U.S.C. 102(b) as being anticipated by Everett (US 5294327).

11. With respect to claim 13, Everett discloses a process for producing food grade solvents of naphtha range from paraffin rich hydrocarbon streams through hydroprocessing (see Everett, Abstract).

12. With respect to claim 20, Everett discloses a process for preparing food grade hydrocarbon solvents of naphtha range containing very low aromatics (see Everett, Abstract).

Claim Rejections - 35 USC § 103

13. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

14. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

15. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

16. Claims 1-3, 9, 14, 17, and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable in view of Hantzer (US 2003/0062292).

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17. With respect to claim 1, Hantzer discloses a process for preparing food grade solvents of naphtha range containing very low aromatics, the process comprising: (a) heating the naphtha range petroleum feed to 150°C (see Hantzer, page 3, paragraph 27); (b) adding a stoichiometric hydrogen to the naphtha range petroleum feed at a pressure of about 34 bar (see Hantzer, page 3, paragraph 27); (c) passing the mixture of feed and hydrogen through a reactor having a nickel based catalyst (see Hantzer, Example 3); and (d) recovering a food grade hydrocarbon solvent of naphtha range containing very low aromatics (see Hantzer, page 2, paragraph 13).

Hantzer does not disclose wherein the stoichiometric amount of hydrogen is added to the naphtha range petroleum feed at a pressure between about 5 to 30 bar.

However, Hantzer explains that the process his invention is operable over a range of conditions consistent with the intended objectives of product quality (see Hantzer, page 4, paragraph 36). Furthermore, Hantzer explains that the process conditions of temperature and pressure are significantly mild compared to conventional hydroprocessing technology (see Hantzer, page 4, paragraph 36).

Therefore, it would have been obvious to the person having ordinary skill in the art at the time the invention was made to modify the process conditions of Hantzer to provide for a supply of hydrogen at a pressure between 5 and 30 bar.

18. With respect to claim 2, Hantzer discloses wherein the feed is a raffinate resulting from the solvent treatment of a light to heavy neutral distillate oil (see Hantzer, page 2, paragraph 19).

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19. With respect to claim 3, Hantzer discloses wherein the raffinate feed has a sulfur content less than 50 ppm (see Hantzer, Example 3).
20. With respect to claim 9, Hantzer discloses wherein the catalyst is supported on a refractory metal oxide support (see Hantzer, page 3, paragraph 20).
21. With respect to claim 14, Hantzer discloses wherein the product contains nil olefins, sulfur less than 1 ppm, and aromatics less than 20 ppm (see Hantzer, Table I).
22. With respect to claim 17, Hantzer discloses wherein the process is carried out under a hydrogen environment at 150°C and about 34 bar (see Hantzer, page 3, paragraph 27).
23. With respect to claim 19, Hantzer discloses wherein the catalyst is pre-reduced before loading into the reactor (see Hantzer, page 3, paragraph 25).
24. Claims 10-12, 15, and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hantzer (US 2003/0062292) in view of Cody (US 6974535).
25. With respect to claim 10, Hantzer discloses a process for preparing food grade solvents of naphtha range containing very low aromatics, the process comprising: (a) heating the naphtha range petroleum feed to 150°C (see Hantzer, page 3, paragraph 27); (b) adding a stoichiometric hydrogen to the naphtha range petroleum feed at a pressure of about 34 bar (see Hantzer, page 3, paragraph 27); (c) passing the mixture of feed and hydrogen through a reactor having a nickel based catalyst (see Hantzer, Example 3); and (d) recovering a food grade hydrocarbon solvent of naphtha range containing very low aromatics (see Hantzer, page 2, paragraph 13); wherein the

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naphtha range petroleum feed is raffinate resulting from solvent treatment of a light to heavy neutral distillate oil (see Hantzer, page 2, paragraph 19).

Hantzer does not disclose wherein the stoichiometric amount of hydrogen is added to the naphtha range petroleum feed at a pressure between about 5 to 30 bar or wherein the metal catalyst loading is in the range of 10-70% by weight.

However, Hantzer explains that the process his invention is operable over a range of conditions consistent with the intended objectives of product quality (see Hantzer, page 4, paragraph 36). Furthermore, Hantzer explains that the process conditions of temperature and pressure are significantly mild compared to conventional hydroprocessing technology (see Hantzer, page 4, paragraph 36). In addition, Cody discloses a process for producing a lubricating oil basestock by selectively hydrotreating a raffinate from a solvent extraction zone with a catalyst containing a metal loading greater than 30% by weight (see Cody, column 5, line 27). Cody explains that the catalyst, which may be a nickel-based catalyst on a refractory metal oxide support (e.g. alumina) (see Cody, column 5, lines 19-31), is effective at reducing the concentration of polynuclear aromatic species present in the raffinate to very low levels (see Cody, column 9, lines 16-20).

Therefore, it would have been obvious to the person having ordinary skill in the art at the time the invention was made to modify the process conditions of Hantzer to provide for a supply of hydrogen at a pressure between 5 and 30 bar and use of a hydrotreating catalyst with nickel loading between about 10% and 70% by weight.

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26. With respect to claim 11, Cody discloses wherein the metal surface area is about $30 \text{ m}^2/\text{g}$ (see Cody, column 5, lines 27 and 65).

27. With respect to claim 12, Cody discloses wherein the physical surface area of the nickel-alumina catalyst is $100 \text{ m}^2/\text{g}$ and the pore volume of the catalyst is $0.25 \text{ cm}^3/\text{g}$ (see Cody, column 5, lines 64-66).

28. With respect to claim 15, Cody discloses wherein the feed is from a vacuum or atmospheric distillation unit and of poor quality (see Cody, column 4, lines 34-36).

29. With respect to claim 18, Cody discloses wherein the group VIII metals are supported on an inert material (see Cody, column 5, lines 22-24).

30. Claims 4-8, and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hantzer (US 2003/0062292) in view of Everett (US 5294327).

31. With respect to claim 4, Hantzer discloses a process for preparing food grade solvents of naphtha range containing very low aromatics, the process comprising: (a) heating the naphtha range petroleum feed to 150°C (see Hantzer, page 3, paragraph 27); (b) adding a stoichiometric hydrogen to the naphtha range petroleum feed at a pressure of about 34 bar (see Hantzer, page 3, paragraph 27); (c) passing the mixture of feed and hydrogen through a reactor having a nickel based catalyst (see Hantzer, Example 3); and (d) recovering a food grade hydrocarbon solvent of naphtha range containing very low aromatics (see Hantzer, page 2, paragraph 13).

Hantzer does not disclose wherein the stoichiometric amount of hydrogen is added to the naphtha range petroleum feed at a pressure between about 5 to 30 bar or wherein the feed has an aromatics content less than 20% by weight.

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added to the naphtha range petroleum feed at a pressure between about 5 to 30 bar or wherein the feed has an aromatics content less than 20% by weight.

However, Hantzer explains that the process his invention is operable over a range of conditions consistent with the intended objectives of product quality (see Hantzer, page 4, paragraph 36). Furthermore, Hantzer explains that the process conditions of temperature and pressure are significantly mild compared to conventional hydroprocessing technology (see Hantzer, page 4, paragraph 36). In addition, Everett discloses a process for the production of food grade quality solvents via the hydrogenation of a naphthenic distillate wherein the feed distillate contains about 15-25 % by weight of aromatic hydrocarbons (see Everett, column 2, lines 39-57).

Therefore, it would have been obvious to the person having ordinary skill in the art at the time the invention was made to modify the process conditions of Hantzer to provide for a supply of hydrogen at a pressure between 5 and 30 bar, as well as to provide for use of a feed having an aromatics content of less than 20% by weight.

32. With respect to claims 5, 8, and 16, Everett discloses use of a naphthenic distillate feed having an aromatics content in the range of 15-25% by weight (see Everett, column 2, lines 56-57).

33. With respect to claims 6 and 7, Everett discloses use of a naphthenic distillate feed. Naphthas are known in the art to have boiling points in the range between about 40°C and 170°C.

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Conclusion

34. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Randy Boyer whose telephone number is (571) 272-7113. The examiner can normally be reached Monday through Friday from 8:00 A.M. to 5:00 P.M.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn A. Caldarola, can be reached at (571) 272-1444. The fax number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

RPB



Randy Boyer
Patent Examiner
Art Unit 1764